Key Factors Influencing Customer Satisfaction of Bank of Bhutan's Digital Banking Services

Sonam Choden*, Thubten Sonam†, and Pema Norbu‡

Abstract

Using the SERVQUAL Model, this paper investigates consumer satisfaction with mobile banking services offered by the Bank of Bhutan (BoB). This study examines users' opinions and satisfaction levels with digital banking services from three districts in Bhutan. A simple random sampling technique was used for the study. By focusing on customer satisfaction in the context of mobile banking in Bhutan, particularly with the mBoB application, the research seeks to fill a gap in the literature. This study has used customer satisfaction as the dependent variable, with the five dimensions of service quality, namely, tangibles, reliability, responsiveness, assurance, and empathy, as the independent variables. Results showed that reliability and empathy significantly influence customers' satisfaction, showing a positive relationship. While tangibility, responsiveness, and assurance do not significantly impact customer satisfaction. Recognizing the greater importance of reliability and empathy, the digital banking industry in Bhutan may further enhance these qualities to achieve higher user ratings. In addition, this study offers valuable recommendations to the stakeholders, including the BoB.

Keywords: Bhutan, Customer satisfaction, digital banking services, mBoB, service quality, SERVQUAL

1. Introduction

Commerce in Bhutan historically relied on bartering local commodities like butter, rice, and wool until the late 18th century. The introduction of silver coins marked a significant shift towards a more formal monetary system, though barter persisted well into the mid-20th century. Under the reign of Druk Gyalpo Jigme Dorji Wangchuk in the 1950s, Bhutan began modernizing its economy. The establishment of the Bank of Bhutan in 1968 marked a pivotal transition towards cash payments and the issuance of banknotes (BoB, 2023). By 1974, Bhutan had introduced standardized currency, further formalizing its monetary system. The Royal Monetary Authority of Bhutan was established in 1982 and has undergone this evolution, moving towards a fully monetized economy (RMA, 2023).

These developments set the stage for modern banking practices, culminating in the widespread adoption of digital banking today. Mobile banking, a modern advancement in mobile commerce, enables banking services on devices such as smartphones and tablets (Momoh, 2017). It offers convenient features such as checking account information, bill payments, and managing transactions (Ibrahim et al., 2021).

These services are preferred over traditional online banking for their anytime, anywhere accessibility, making banking easier for users (Tshering et al., 2018). However, ensuring customer satisfaction remains challenging, as mobile banking services are intangible (Momoh, 2017). Satisfaction depends on how well banks meet customer expectations and interpret their needs (Ibrahim et al., 2021). The mBoB mobile banking app offers convenient services such

* Student, Master's in Development Practice, College of Natural Resources, Royal University of Bhutan, Punakha, Bhutan.
† Student, Department of Sustainable Development, College of Natural Resources, Royal University of Bhutan, Punakha, Bhutan.
‡ Technical Support Staff, Bank of Bhutan Limited, Thimphu, Bhutan.

as fund transfers and utility bill payments, with 312,364 registered users, ranking it highly among customers (RMA, 2022). Mobile banking has the potential to bridge financial gaps, enhance service delivery, and reduce costs (Fiocco, 2019). Despite its benefits, issues such as security and connectivity are significant barriers in Bhutan (Nima, 2021). For instance, a woman lost Nu. 600,000 after losing her phone, raising concerns about mBoB's reliability (Nima, 2021). Additionally, the lack of a transaction backup system led to customer frustration during system outages (Nima, 2021).

Although the SERVQUAL model has been applied extensively across many service industries, its use in Bhutan's banking sector remains quite limited. For example, Bhattarai and Kharka (2016) focused mainly on technical aspects and overall customer satisfaction but did not closely examine the specific factors that influence satisfaction. One reason the SERVQUAL model is important is that it helps address the challenge of measuring service quality by comparing customers' expectations with their actual experiences (Moragudi, 2024). In this context, the current study aims to close this gap by evaluating service quality using the SERVQUAL model to assess mBoB's service quality and identify the elements that influence customer satisfaction, with the goal of improving digital banking services in Bhutan.

2. Sampling Method and Sample Sizes

Three districts were used in the study: Samtse, Wangdue, and Trashigang. According to the BoB survey 2023, the chosen dzongkhags have more customers registered for the mBoB services; in total, there are 50661 (BoB, 2024). Three districts, Samtse, Wangdue Phodrang, and Trashigang, from three different regions, South, Central, and East of the country, were selected respectively to represent a general user of mBoB in the country.

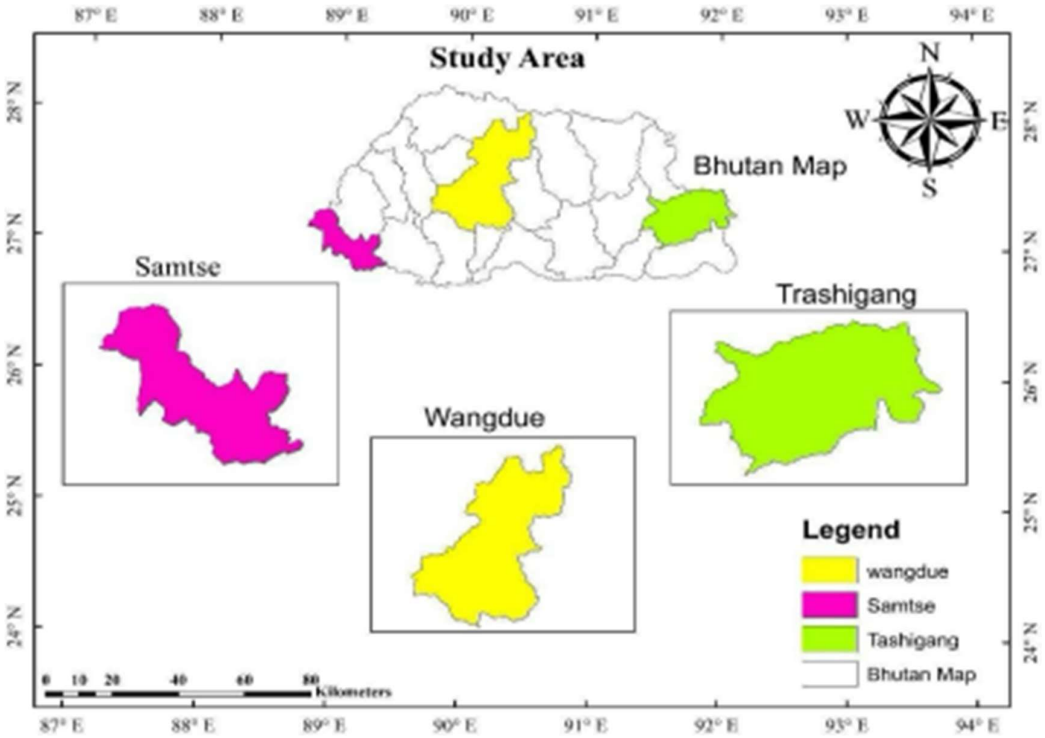

Figure 1: Study Area

The study applied the Taro Yamane (Yamane, 1998) formula to determine the sample size. The

Yamane sample size determination is deemed suitable for this survey research, as the technique is applicable to known finite populations and provides a very high confidence level, leaving only a small margin for error (Uakarn *et al*., 2021). A simple random sampling method was employed. To reduce sampling bias, only a small subset of the population was selected by randomly selecting individuals as study subjects. This means that any kind of bias in the sampling can be eliminated. So, participants have an equal chance of getting selected. There will be no bias among participants, and a systematic framework for determining the most appropriate sample size will be used to ensure effective representation of the entire population.

After using the Taro Yamane formula, the target population (planned sample size) to be surveyed was estimated at around 395 individuals per Dzongkhag. However, due to limited time and resources and to fairly represent individuals from three study sites, the planned sample size was 395. After that, quota sampling was conducted across the three sites, yielding 132 individuals per site. Of the planned sample size, only 304 data points were used for analysis in this paper because 91 respondents provided incomplete or inaccurate responses. Analyzing these incomplete or inaccurate responses could have introduced bias into the study's results. Therefore, 91 participants (23%) were excluded. Consequently, all results are based on 304 individuals.

$$Sample\ size\ (n) = \frac{N}{1 + (e)^2}$$

Where n = sample size, N = total population, e = Margin of error (95% confidence interval, *p=0.05*).

3. Data Analysis

The study employed a quantitative research method to achieve its objectives. Respondents' responses were coded in Microsoft Excel, and the analysis was conducted using SPSS, RStudio, and JASP. With functions similar to those in Microsoft Excel, SPSS helped compile and organize the collected data across various fields. Both descriptive and inferential statistics were used to draw conclusions from the study findings. An ordinal regression analysis was used to determine the factors influencing customer satisfaction with BoB digital banking services.

An ordinal regression analysis was used because customer satisfaction is measured on an ordinal scale, with categories that have a natural order but unequal distances between them. According to the model-fitting data, the logistic regression model provided a significant improvement over the intercept-only model. Specifically, the -2 Log Likelihood value for the intercept-only model was 499.183, while that for the final model was 447.023. This difference resulted in a Chi-Square value of 52.159 with 5 degrees of freedom, which was statistically significant ($p < .001$). This significant Chi-Square test revealed that the predictors in the model significantly improve fit relative to the intercept-only model, indicating that the chosen factors are effective at explaining variations in customer satisfaction.

4. Results and Discussion

4.1 Demographic Details of the Respondents

The study collected a total of 304 responses from three dzongkhags: Samtse (100), Trashigang (104), and Wangdue Phodrang (100). Participants included 49% males and 51% females, aged 10-50 years. Professionally, 20.1% respondents were civil servants, 24% were students, 30.3%

were unemployed, and 25.7% were homemakers.

Table 1: Demographic details of the respondent

Variables	Categorical	Frequency	Percent (%)
Age	10-20	37	12.2
	21-30	125	41.1
	31-40	68	22.4
	41-50	42	13.8
	Above 50	32	10.5
Gender	Male	149	49
	Female	155	51
Dzongkhag	Samtse	100	32.9
	Wangdue Phodrang	100	32.9
	Trashigang	104	34.2
Marital status	Single	127	41.8
	Married	163	53.6
	Divorce	14	4.6
Occupation	Civil servant	61	20.1
	Student	73	24
	Unemployed	92	30.3
	Homemaker	78	25.7

4.2 Reliability Analysis

When analyzing an instrument or conducting research, reliability is a critical consideration. Reliability, which denotes the consistency and stability of data collection methods, is typically evaluated using Cronbach's Alpha (Izah *et al*., 2023). This metric ensures the researcher relies on data that is accurate and consistent, mitigating biases and false information. For primary research, an alpha value exceeding 0.7 is generally preferred, indicating a high level of reliability.

Before data collection was completed, one-sixth of the sample (50 samples) was used for reliability analysis. Cronbach's Alpha values were calculated separately for each dimension and are presented in Table 2. The alpha values ranged from 0.963 to 0.978 for Assurance and Reliability, respectively. These data are significantly higher and closer to 1 than to 0, indicating that the questions used and the data obtained from the samples are very reliable.

Table 2: Alpha values of each dimension

Dimensions	No. of questions	Alpha Values
Tangibility	5	0.945
Reliability	7	0.978
Responsiveness	5	0.978
Assurance	4	0.963
Empathy	3	0.965

Customer Satisfaction based on SERVQUAL dimensions

A complete overview of the collected data, including the mean and standard deviation, is presented in Table 3. Through all SERVQUAL dimensions, Tangibility, Reliability, Responsiveness, Assurance, and Empathy, the responses ranged from 2 to 5 on a 5-point Likert scale. The average scores for each dimension fell between (M = 3.78) and (M = 3.83), indicating a level of agreeableness that surpasses satisfactory levels. Likewise, the standard deviation for each dimension hovered around (SD = 0.8). Furthermore, the table displays the mean value representing overall customer satisfaction. According to these descriptive statistics, satisfaction with mobile banking services exceeds satisfactory levels, with a mean value of (M = 3.66) and a standard deviation of (SD = 0.66). From this data, we can conclude that people are mostly satisfied with the services provided by the BoB and are willing to use them, despite minor inconveniences. This contrasts with the findings of Sugiarto and Octaviana (2021), who found that responsiveness and assurance did not significantly affect customer satisfaction. This discrepancy may be attributed to differences in the service context. Their study examined physical branch services, whereas the present study focuses on mobile banking services offered by the Bank of Bhutan.

Table 3: Customer Satisfaction based on dimensions (N=304)

	Minimum	Maximum	Mean	Std. Deviation
Satisfaction	1	5	3.66	0.66
Tangibility	2	5	3.78	0.83
Reliability	2	5	3.80	0.88
Responsiveness	2	5	3.81	0.84
Assurance	2	5	3.83	0.86
Empathy	2	5	3.80	0.87

The five dimensions of the SERVQUAL model were used as predictor variables in the analysis. To determine the factors influencing customer satisfaction, an ordinal regression model was employed. The maximum likelihood estimator was used to examine the model, and the odds ratios of the variables were obtained (Table 4). The model's validity was evaluated using a likelihood ratio test. Customer Satisfaction was used as the dependent variable, categorized as 1) Dissatisfied, 2) Neutral, 3) Satisfied, and 4) Very Satisfied.

Table 4: Model Fit Statistics

Model	**-2 Log Likelihood**	**Chi-Square**	**df**	**Sig.**
Intercept Only	499.183			
Final	447.023	52.159	5	.000

As shown in Table 4, the final model, which includes the variables, fits the data better than the model that only includes intercepts. The square test result *($\chi 2$ (5)* = 447.023, $p < .000$) indicates that the independent variables influence customer satisfaction. The 2-log likelihood of the model is 447.023, which is lower than the 2-log likelihood of the intercept-only model (499.183). The small *p-value (< 0.001)* indicates a significant difference in log-likelihood between the two models, indicating that the final model provides a significantly better fit to the data than the intercept-only model.

4.3 Ordinal Regression Analysis

Ordinal regression analysis was conducted to determine which factors influence customer satisfaction (CS) with the Bank of Bhutan's (BoB) digital banking services. The analysis focused on five dimensions of the SERVQUAL Model: Tangibility (TAN), Reliability (REL), Responsiveness (RES), Assurance (ASS), and Empathy (EMP). The results indicated that Reliability and Empathy significantly affect customer satisfaction, with estimates of 0.755 (SE = 0.264, Wald = 8.186, $p = .004$) and 0.440 (SE = 0.213, Wald = 4.256, $p = .039$), respectively. However, Tangibility, Responsiveness, and Assurance did not have a significant impact.

Table 5: Parameter Estimates

							95% Confidence Interval	
		Estimate	Std. Error	Wald	*df*	Sig.	Lower Bound	Upper Bound
Threshold	[CS = 1.00]	-1.217	.718	2.871	1	.090	-2.625	.191
	[CS = 2.00]	-.189	.618	.094	1	.760	-1.401	1.023
	[CS = 3.00]	2.981	.630	22.411	1	.000	1.747	4.215
	[CS = 4.00]	6.685	.720	86.278	1	.000	5.274	8.096
Location	TAN	-.307	.249	1.522	1	.217	-.795	.181
	REL	.755	.264	8.186	1	.004	.238	1.272
	RES	-.417	.278	2.257	1	.133	-.961	.127
	ASS	.470	.286	2.693	1	.101	-.091	1.031
	EMP	.440	.213	4.256	1	.039	.022	.859

Reliability and empathy were significant predictors of customer satisfaction with the Bank of Bhutan's digital banking services. This is consistent with Hoque et al. (2023), who identified attributes associated with these, including service speed, staff helpfulness, and app design, as a key driver of satisfaction. However, these contradict Eberle et al. (2017), who found that tangibility, assurance, and responsiveness were significant factors, while empathy and reliability were not. Furthermore, the present findings align with Pakurar et al. (2019) and Kha et al. (2020), reinforcing the notion that reliability and empathy are the most influential SERVQUAL dimensions in the context of digital banking services.

Overall, the findings suggest that while reliability and empathy are crucial for customer satisfaction, the dimensions of tangibility, assurance, and responsiveness play a less significant role. The study focuses on the importance of service providers in improving reliability and empathy to enhance customer satisfaction. Despite general satisfaction with the mBoB service quality, there are gaps in meeting expectations across some SERVQUAL dimensions. Ensuring reliable, empathetic service can significantly improve customer satisfaction with BoB's digital banking services.

5. Conclusion and Recommendations

In conclusion, the study's ordinal regression analysis highlighted the key factors influencing customer satisfaction with Bank of Bhutan's digital banking services. The finding focuses on

the importance of reliability and empathy in shaping customers' perceptions and overall satisfaction. By prioritizing these aspects, the Bank of Bhutan and other industry stakeholders can enhance service quality, thereby improving customer experiences and loyalty in the digital banking sector.

Therefore, we recommend focusing on improving the reliability of digital banking services to ensure consistent, trustworthy transactions and, moreover, to be more transparent in banking Services, which significantly influence customer satisfaction. It will be imperative to train staff to provide empathetic, helpful customer service, as this has a direct positive impact on customer satisfaction with Bank of Bhutan's digital banking services.

6. Study Limitations and Future Research Agenda

6.1 Limitations of the Study:

a) Geography constraint: The study focuses on a narrow geography scope, as data was collected only from three districts.

b) The study was exclusively focused on the Bank of Bhutan (BoB) and its mBOB application. Consequently, the findings cannot be generalized to the entire Bhutanese digital Banking Sector.

6.2 Scope for Future Research:

a) Future researchers should focus on expanding the study area beyond the three districts.

b) Researchers could also incorporate qualitative methodology to find why dimensions such as tangibility, responsiveness, and assurance did not significantly influence customer satisfaction.

c) Researchers can also do comparative analysis between the Bank of Bhutan (mBOB) and other Banking sectors in Bhutan.

7. Practical Implications

The findings of this study provide a strategic roadmap for the Bank of Bhutan and other financial stakeholders to improve digital services by placing greater emphasis on reliability and empathy, which were identified as the primary drivers of customer satisfaction in the Bhutanese context. By focusing on system dependability and training staff to provide more personalized, helpful support, banks can address customer frustrations caused by system breakdowns and the lack of transaction backup systems.

In addition, the research fills a crucial gap in the service quality literature on Bhutanese consumers by offering evidence-based recommendations to address their concerns, such as connectivity issues, security risks associated with mobile services, and device theft. Ultimately, these insights allow service providers to better serve a demography largely composed of students and unemployed youth, helping to foster greater financial trust and long-term customer loyalty as Bhutan continues its change toward a fully modernized digital economy.

Author Contributions:

Sonam Choden: Data curation, Software, Methodology, Writing – original draft, Writing – review & editing.
Thubten Sonam: Conceptualization, Supervision, Validation, Writing – review & editing.
Pema Norbu: Data Validation, Review & Editing.

Disclosure Statement: No potential conflict of interest was reported by the author(s).

Data Availability Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request. Requests for data can be sent via email to: somgenchoden56@gmail.com

Ethical Disclosure Statement: Informed consent was obtained from all participants for being included in the study. No identifying information about participants is included in this article.

Funding Disclosure: The author(s) received no financial support for the research, authorship, and/or publication of this article.

Acknowledgments: The authors would like to express their sincere gratitude to the managers of Bank of Bhutan Limited for their support in approving the survey and to all respondents who participated in this study and contributed valuable insights.

References

Bank of Bhutan. (2022). *Annual report 2022.* https://www.bob.bt/wp content/uploads/2023/06/BoB-Annual-Report-2022.pdf

Bank of Bhutan. (2024). *Digital banking; mBoB*. https://www.bob.bt/personal banking/digital-banking/mbob/

Bhattarai, H., & Kharka, D. S. (2016). Analysis of Customer Satisfaction: Bank of Bhutan Limited. *International Journal of Management Excellence, 7*(2), 821-828.

Eberle, L., Milan, G. S., & Dorion, E. (2016). Service quality dimensions and customer satisfaction in a Brazilian university context. *Benchmarking: An International Journal*, *23*(7), 1697-1716.

Fiocco, M. (2019). Banking for the Unbanked: The Promises, Pitfalls and Potentials of Mobile Banking. [Research paper, University of Ottawa]. University of Ottawa Research. https://doi.org/10.20381/ruor-23769

Hoque, U.S., Akhter, N., Absar, N., Khandaker, M.U. & Al-Mamun, A. (2023). Assessing service quality using the SERVQUAL model: An empirical study on some private universities in Bangladesh. *Trends in Higher Education, 2*(1), 255–269.

Ibrahim, M., Sare, Y.A. & Adam, I.O. (2021). An application of the frequency domain approach to the causal nexus between information, communication, and technology infrastructure and financial development in selected countries in Africa. *International Journal of Finance & Economics, 26*(1), 1206–1235.

Khan, A. G., Mahmud, M. S., & Lima, R. P. (2020). Investigating the relationship between service quality and customer satisfaction of BKash in Bangladesh. *International Journal of Financial Services Management*, *10*(1), 1-17.

Mishra, P. (2015). Study of demographic influence on customer satisfaction towards banking services among residents of Gwalior city. *International Journal of Science and Research, 4*(10), 948-951.

Momoh, O. D. (2017). Mobile Banking. International Journals of Advanced Research in Computer Science and Software Engineering, *7*(6), 75-76. https://doi.org/10.23956/IJARCSSE/V7I6/01615

Moragudi, K. K. (2024). *The factors influencing customer satisfaction in mobile banking* (Independent study, Siam University). https://e-research.siam.edu/wp-content/uploads/2024/11/MBA-2023-IS-Kiran-Kumar-Moragudi-6417192006-The-Factors-Influencing-Customer-Satisfaction.pdf

Nima. (2021). Phone thief flees with Nu.600,000 siphoned from owner's account. *Kuensel*. https://kuenselonline.com/phone-thief-flees-with-nu-600000-siphoned-from-owners account/

Pakurár, M., Haddad, H., Nagy, J., Popp, J. and Oláh, J. (2019). The service quality dimensions that affect customer satisfaction in the Jordanian banking sector. *Sustainability, 11*(4), 1113. https://doi.org/10.3390/su11041113

Parasuraman, A. (1998). Customer service in business-to-business markets: an agenda for research. *Journal of business & industrial marketing, 13*(4/5), 309-321. https://doi.org/10.1108/08858629810226636

RMA. (2023). Access to Finance: Demand Side Survey 2022. Bhutan. https://www.rma.org.bt/RMA%20Publication/papers/2023/Access%20to%20FInance%20Demand%20Side%20Survey%20Report%202022.pdf

Samtse Dzongkhag Administration. (2018). About Dzongkhag. http://www.samtse.gov.bt/about-dzongkhag

Sugiarto, S., & Octaviana, V. (2021). Service quality (SERVQUAL) dimensions on customer satisfaction: Empirical evidence from bank study. *Golden Ratio of Marketing and Applied Psychology of Business*, *1*(2), 93-106.

Trashigang Dzongkhag Administration. (2018). About district. http://www.trashigang.gov.bt/index.php/about-district

Tshering, P., Dhungyel, P. R., & Yangdon, L. (2018). Customer perception on online banking system in Bhutan: A study on mobile banking of Bank of Bhutan. In *2018 International Conference on Current Trends Towards Converging Technologies (ICCTCT)* (pp. 1–5). IEEE.

Uakarn, C., Chaokromthong, K. and Sintao, N. (2021). Sample size estimation using Yamane and Cochran and Krejcie and Morgan and Green formulas and Cohen statistical power analysis by G* power and comparisons. *Apheit Int J, 10*(2), 76-88.

Wangdue Phodrang Dzongkhag Administration. (2018). *About district*. http://www.wangduephodrang.gov.bt/about-district

Yamane, T. (1973), *Statistics: An Introductory Analysis.* (3rd ed.). Harper & Row.

Zeithaml, V. A., Berry, L.L. and Parasuraman, A. (1988). Communication and control processes in the delivery of service quality. *Journal of Marketing, 52*(2), 35-48.

Appendix: Scale items used in this study under SERVQUAL dimensions (scale ranging from 5, indicating strongly agree to 1, indicating strongly disagree)

Dimensions	Indicators	Scale item
Tangibility	User-friendly/ compatibility	The mBoB Application works on all types of mobile phones.
		The mBoB service's user guidelines are straightforward and easy to understand.
	Physical appearance	I have encountered technical issues or errors while using BoB's digital banking services (mBoB).
	Adequacy of the mBoB features/the menu option	The mBoB's services are sufficient to handle all online payments.
	Message notification	Credit or debit messages are promptly notified to the customers.
Reliability	Transaction accuracy	Transactions made through mBoB are reliable (what's debited from one account should get credited to another account without an error).
	Confidentiality	The secrecy and confidentiality of user account details are reliably maintained.
	Consistency	The charges and usage details of the mBoB service are consistent.
	Connectivity	The mBoB service function's connectivity rarely breaks down.
		The service provider promptly addresses connectivity issues.
	Timeliness	The mBoB agents always inform customers about the service interruption.
		The mBoB agents keep customers informed of any changes to charges and usage details.
Responsiveness	Approachability of the staff	The customer care service providers are polite and comfortable to approach.
	Promptness of the service	The speed at which the BoB resolves the digital banking issues is satisfactory.
		The customer service desk can satisfy the customers' queries /complaints immediately
	Willingness of the staff	Customer care service providers are willing to handle the complaints with care and without much delay
		Staff and customer care service providers communicate clearly and helpfully with the customers
Assurance	Knowledge and skills of staff	Customer service providers have adequate knowledge of their roles and responsibilities.
	Transparency	The mBoB agent provides clear information about any deductions made (e.g., maintenance fees).
	Competence	The service providers are competent enough to respond to the customer queries.
	Security	Customers feel safe making transactions through mBoB.
Empathy	Service accessibility	Customer care services are provided round the clock (24/7).
	Provision of compensation	The mBoB agent provides compensation for losses resulting from a transaction error.
	Consider ability	The mBoB agent always considers the customers' best needs and demands.

Corresponding author contact info:
Sonam Choden, Email: somgenchoden56@gmail.com